

Call for white papers on research opportunities in Inertial Fusion Energy

Issued by the program committee for the IFE community workshop

Dear colleagues,

With increased national interest in fusion energy, direct recommendations from FESAC, and encouraging inertial fusion results, now is the opportune time to evaluate a U.S. Inertial Fusion Energy (IFE) program. We are convening a community-driven workshop with a two-fold charge:

- 1) Assess near- and long-term research opportunities in inertial fusion energy, and the necessary high energy density physics and technologies.
- 2) Outline and develop a strategy for the HEDP, ICF, and IFE communities to work together.

This workshop endeavors to collect input from the *entire* community, spanning academia, national laboratories, industry, and private investors. Engaging all aspects of our community and leveraging their unique capabilities solidifies the foundation of future IFE work.

In advance of the workshop, to be held virtually February 22-24 2022, we solicit input from the community in the form of white papers. Please find below non-exclusive topics of interest, formatting guidelines, and submission information. White papers will be accepted until Jan 25, 2022.

Recommended Topics

The following categories are suggested for white paper submissions, but papers on any topic the authors consider relevant to the broad research needs and mission of IFE will be accepted. This includes any areas of common interest across fusion approaches (e.g. MFE). White papers can address holistic issues of IFE plants or specific system aspects.

- General, including complete IFE concepts
- Target physics and design
- Chamber, including first wall, materials, etc
- Fuel cycle
- Targets (including manufacture, injection, and survivability)
- Drivers (including driver-specific technologies, e.g. final optics)
- Diagnostics
- Economics
- Reactor engineering and balance of plant (e.g., rep-rates, gains, output powers)
- Safety, environmental aspects, decommissioning & disposal, and licensing and regulation

Formatting guidelines

White papers are to follow these formatting guidelines:

- The total length should not exceed 5 pages (12 point font, single spaced, including any tables or figures)

- A section of references will not count towards the page length
- An optional cover page may be included with information such as the title, authors and their institutions, contact information, and identifying one of the above topics
- The white paper should begin with an executive summary that is accessible to any researchers in the broad areas relevant to IFE
- Context of the white paper in terms of the work's role in the larger picture of an IFE system should be described in the introduction.
- A table of approximate numbers orienting the work in parameter space (e.g. design repetition rate, gain, power output of the plant) is strongly encouraged.
- Description of key metrics for the work should be included in the white paper
- Conveying the technical credibility of the approach will strengthen any submitted white paper

While not required for the white paper submission, we anticipate soliciting single-slide overviews of each paper for presentation at the workshop.

[Submission information](#)

White papers should be submitted in PDF format. All co-authors should consent to the submission. White papers will be subsequently posted on our website. The PDF submission should be emailed to zylstra1@llnl.gov and albrecht5@llnl.gov.